

## A new species of the Asian schilbid catfish genus *Clupisoma* from Myanmar, with a redescription of *Clupisoma prateri* Hora (Osteichthyes: Siluriformes: Schilbidae)

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### Abstract

The species *Clupisoma roosae*, new species, is recorded from the upper Irrawaddy River, Myanmar. This species can be distinguished from its sole congener in Myanmar, *Clupisoma prateri* Hora, 1937, in having a shorter pectoral-fin spine that does not extend past the pelvic-fin origin, a reduced abdominal keel that extends anteriorly only to the level of the pelvic-fin base, only 11 pectoral-fin rays and 45 to 47 branched anal-fin rays. Although the two species occur in the Irrawaddy River, they have not been collected together and appear to inhabit different portions of the river basin. *Clupisoma prateri* is distributed in the lower and middle reaches of the Irrawaddy River as well as the nearby Sittang, Bago, and Salween rivers, while *C. roosae* appears to be restricted to the upper reaches of the Irrawaddy. To facilitate comparisons between the two species of *Clupisoma* in Myanmar, *C. prateri* is redescribed.

**Key words:** Irrawaddy River basin, *Clupisoma*, Schilbidae, Myanmar, Burmese fishes

### Introduction

From the earliest reports on the inland fish fauna of Myanmar, the schilbid catfish genus *Clupisoma*, as currently diagnosed (e. g., see Jayaram, 1971, 1999), was thought to have been represented by a single species. Studies by Francis Day (e. g., Day 1875–78, 1889) indicated that the single Myanmar species was *Clupisoma garua* (Hamilton, 1822) (referred to at that time as *Pseudeutropius garua*), a species initially described from the Ganges River basin. Hora (1937) concluded that the species found in Burmese waters was distinct from that found in the Ganges basin, and he named the Burmese species *Clupisoma prateri*. Subsequent studies by Jayaram (1977, 1999) supported the validity of *C. prateri* and reported that species as the only *Clupisoma* in Myanmar.

Examination of several recent collections of fishes from Myanmar revealed two clearly-distinct species of *Clupisoma*. One species is distributed widely across the lower and middle reaches of the Irrawaddy River basin and in nearby rivers and the second appears to be limited to the upper Irrawaddy River, inasmuch as all of the known specimens are from the vicinity of Myitkyina, the capital city of Kachin State. The species of the lower Irrawaddy fits Hora's description of *Clupisoma prateri* and the second species was determined to be unnamed. The objective of this paper is to describe the new species and provide a redescription of *C. prateri*, the only other species found in the waters of Myanmar.

## Materials and Methods

Specimens examined during this study are deposited in one of the following institutions: American Museum of Natural History (AMNH), The Natural History Museum, London (BMNH), California Academy of Sciences, San Francisco (CAS), Swedish Museum of Natural History, Stockholm (NRM), National Museum of Natural History, Washington (USNM). Other institutions mentioned in the text include: Asiatic Society of Bengal (ASB); Zoological Survey of India, Calcutta (ZSI). Other abbreviations used: SL, Standard Length; HL, Head Length.

Vertebral counts include the Weberian complex as four vertebrae and the hypural complex as one. In the description of *Clupisoma roosae*, n. sp., fin ray counts for the holotype are indicated by an asterisk (\*).

Although the family group name that includes the species described herein is often spelled Schilbeidae, the spelling used here, Schilbidae, was adopted because it was considered to be correct by Steyskal (1980: 174), following a number of comparable examples in fish family names, including Belonidae for the family group name based on the genus *Belone*.

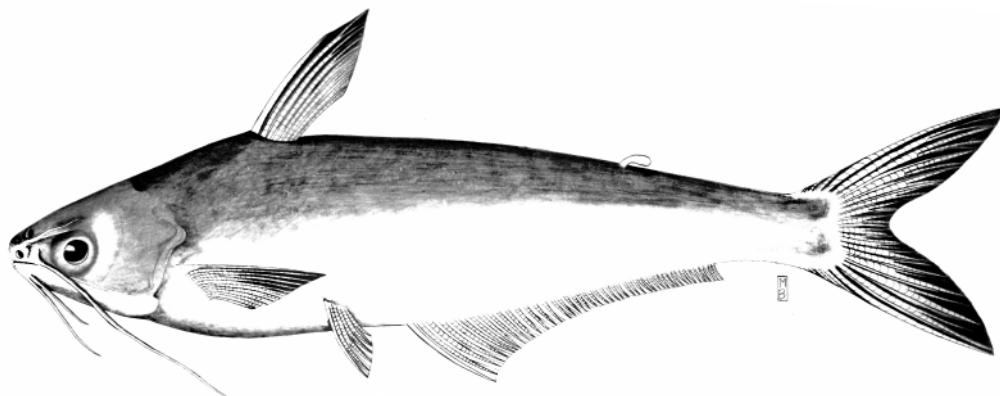
### *Clupisoma roosae* n. sp. (Fig. 1)

**Holotype.** NRM 40030 (160 mm SL) Myanmar, Kachin State, Myitkyina market, F. Fang and A. Roos, March 1997.

**Paratypes** (all from Myanmar, Kachin State, Myitkyina market). CAS 218070 (1, 125 mm SL); NRM 40701 (1, 135 mm SL), S. Kullander and R. Britz, 24 March 1998. USNM 344653 (6, 116–154 mm SL), C. Ferraris, D. Catania, and Myint Pe, April, 1996.

**Diagnosis.** A species of *Clupisoma* in which the pectoral spine does not reach past the base of the pelvic fin, the abdomen is keeled only from a vertical through the pelvic-fin origin to the anus, pectoral fin with a spine and 11 segmented rays, anal fin with 4 or 5 unbranched, and 43–50 branched rays, and first gill arch with fewer than 18 rakers on the

outer face. The body is silvery or white below the lateral line posterior of the pectoral fin, and steel gray above; more anteriorly, the grayish region extends to level of the pectoral-fin origin.



**FIGURE 1.** *Clupisoma roosae*, new species, holotype, NRM 40030 (160 mm SL).

**Description.** (based primarily on the holotype) Body elongate, compressed; depth at dorsal origin about 4 1/2 in SL and slightly larger than HL. Dorsal profile of body nearly horizontal past dorsal fin, straight between dorsal-fin origin and snout; abdomen rounded anteriorly, indistinct midventral keel extends from level of pelvic-fin origin to vent; vent located at anal-fin origin. Lateral line complete, with short branches extending obliquely above and below for entire length. Vertebral column with 45 to 47 vertebrae and 11 or 12 ribs.

Head nearly 5 in SL; compressed posteriorly, nearly as high as wide at middle of eye; opercular opening broad, extending from level of lateral line to anterior of isthmus, opercular membranes not connected to isthmus; posterolateral margin of operculum with posteriorly directed, fleshy lobe; tip of lobe rounded.

Snout broadly rounded in lateral view, in dorsal view, snout margin trilobed, lobes not well defined; anterior naris located on anterior margin of snout; naris round and directed anteriorly, narial opening surrounded by reflexed skin; posterior naris an elongated slit, located slightly posterodorsal and medial to anterior naris, naris nearly transversely oriented, but medial end somewhat posterior of anterior end; anterior narial margin with convex flap of skin that often covers narial opening; nares large, width of posterior naris approximately that of internarial distance.

Eye lateral, visible from both dorsal and ventral view; eye positioned somewhat below middle of head, middle of pupil at level of anterior nostril; eye covered laterally with adipose tissue, but with ovoid, vertically elongated opening lateral to pupil.

Mouth subterminal, upper jaw overhangs lower jaw; mouth opening small, completely anterior to anterior orbital margin; Premaxillary tooth plate arched, teeth slender and coni-

cal, in two or three irregular rows; upper jaw teeth exposed when mouth is closed. Margin of lower jaw strongly curved, smoothly rounded across symphysis; tooth plate on lower jaw crescentic, teeth slender, conical and somewhat larger than premaxillary teeth, in several rows near symphysis, reduced to one row laterally. Palatal tooth patch a slender oblique band that extends nearly to midline, at least in larger specimens; teeth conical, smaller than those of premaxilla. Teeth in three irregular rows laterally, reduced to one near midline. Accessory tooth patches absent from upper jaw and palate.

Gill rakers: 15 to 17 on outer face of first arch (4 or 5\* on upper limb and 11\* or 12 on lower limb).

Barbel in four pairs, all barbels rest in shallow groove in skin, at least basally. Nasal barbel small, thread-like, extending from lateral margin of posterior naris to level of pupil. Maxillary barbel extends from posterior of anterior naris to level of pectoral-spine tip; mental barbels in two pairs, barbel bases originate in transverse row at level of posterior naris; inner mental barbel extends to level of pectoral spine origin, outer mental barbels slightly shorter.

Dorsal fin located in anterior one-third of SL, fin base short, about equal to snout length; fin similar in size to pectoral fin; segmented rays preceded by spinelet and sharply pointed spine; spine with fine roughened ridge anteriorly, and with fine retrorse serrations on distal half of posterior margin; fin margin regressive, nearly straight; length of last ray about one-half that of first. Dorsal-fin rays: II, 7\*. Adipose fin small, located above posterior third of anal-fin base.

Caudal fin deeply forked, lobes pointed and symmetrical; outer principal rays about 3 times length of middle rays. Principal caudal fin rays: i,7,8,i\*.

Anal-fin origin located just anterior to level of middle of SL; anal-fin base long, about 2 1/2 times in SL; fin margin slightly concave anteriorly, nearly straight posteriorly; posterior rays shortest. Last ray without membranous connection to caudal peduncle. Anal-fin rays: iv–v, 43–50 (holotype: iv, 47\*).

Pelvic fin small, its length only slightly more than one-half that of pectoral fin; fin origin just posterior to level of posterior insertion of dorsal fin; adpressed fin not extending to anal-fin origin. Pelvic-fin rays: i, 5\*.

Pectoral fin triangular, first branched ray longest; adpressed fin extends to below posterior half of dorsal fin base, usually falling short of pelvic-fin origin and never extending beyond. Pectoral-fin spine slender with fine roughened ridge anteriorly and with fine retrorse serrations on distal half of posterior margin. Pectoral-fin rays: I,11\*.

**Coloration.** Body steel gray above, whitish or silvery below. Posterior of dorsal-fin base, gray area restricted to area dorsal to lateral line, more anteriorly, gray extends ventrally to level of pectoral fin. Head dark dorsally, silvery postorbitally and on opercle below level of pectoral spine; snout margin pale. Ventral surface of head and abdomen pale. Dorsal fin pale basally, with diffuse broad marginal band. Adipose fin pale. Caudal fin mostly pale, principal unbranched rays dusky, and margin of fin with broad dark band.

Anal and pelvic fins pale. Pectoral fin dusky on basal part of anterior rays, posterior rays and fin margin pale. Maxillary barbel dusky basally, other barbels pale.

**Distribution.** This species is known only from specimens found in the Myitkyina market. Fishes that supply the Myitkyina market come only from the upper reaches of the Irrawaddy River (U Tun Shwe, personal communication). The species appears to be collected by local fishermen routinely, but not in great numbers, inasmuch as specimens were routinely obtained by ichthyologists who visited the Myitkyina market in the late 1990's. Collections made further down river in the Irrawaddy basin, including Mandalay, Nyaung-U, and the Shweli River mouth, did not include any specimens of this species, but did include specimens of its congener, *Clupisoma prateri*.

**Remarks.** *Clupisoma roosae* is readily distinguished from its congeners. It differs from *Clupisoma prateri* Hora, the only other congener in Myanmar, by its comparatively short abdominal keel, which extends only between the level of the pelvic fin origin and the vent. More anteriorly, the ventral margin of the abdomen is distinctly rounded. In contrast, the keel of *C. prateri* extends for most of the length of the abdomen. The two species can also be distinguished on body coloration. *C. prateri* is nearly uniformly silvery, with a greenish cast along the dorsal midline. In *C. roosae*, the posterior portion of the body is silvery or white below the lateral line and steel gray above. The two species can be further distinguished by a series of meristic differences that are summarized in Table 1.

**TABLE 1.** Comparison of select features of *Clupisoma prateri* Hora, and *C. roosae*, n. sp.

	<i>C. prateri</i>	<i>C. roosae</i>
Posterior extent of pectoral-fin spine	Extending at least to pelvic-fin origin	Not extending past pelvic-fin origin
Extent of abdominal keel	From pectoral-fin origin to vent	From pelvic-fin origin to vent
Pectoral fin segmented rays	12 to 13 [modally 12]	11 [10 on one side of one specimen]
Anal-fin branched rays	37 to 42 [modally 39]	43 to 50 [modally 47]
Gill rakers on first branchial arch	20 to 25 [modally 24]	15 to 17 [modally 16]

*Clupisoma garua* (Hamilton, 1822), from the Gangetic region of India and Bangladesh, can be distinguished from *Clupisoma roosae* in having substantially fewer branched anal-fin rays (fewer than 33 in *C. garua*, vs. more than 43 in *C. roosae*), as well as lacking an adipose dorsal fin, which is present in the new species.

Hora (1937) described *Clupisoma montana* from the Teesta River, India, and Mirza and Awan (1973) described *Clupisoma naziri* from the Indus River basin, Pakistan. Datta and Karmakar (1980) distinguished these species from all other species of South Asian *Clupisoma* by the absence of a midventral keel along the abdomen. Both species also were

reported to have fewer total anal-fin ray counts (41 to 43 in *C. montana*, and 40 to 47 in *C. naziri*), than observed in any specimens of *C. roosae*. In addition, *C. montana* was observed by Hora to have a short maxillary barbel that is “somewhat longer than head” and, from the illustration of the holotype, does not reach anywhere near the tip of the adpressed pectoral fin as it does in *C. roosae*.

*Clupisoma bastari* Datta and Karmakar, 1980, from the Godavari River basin of Madhya Pradesh, was reported in the original description to have total anal-fin ray counts that range from 52 to 54 rays, which is higher than any counts for *C. roosae*. In addition, *C. bastari* was reported to have an abdominal keel that extends from the vent anteriorly onto the thorax, which far exceeds the anterior extent of the keel in *C. roosae*.

Finally, Ng (1999) recently proposed that *Platytropius sinensis* Huang, 1981, a species originally described from the upper Mekong River basin of China, should be placed into *Clupisoma*. That proposal is supported herein, based on examination of specimens from Laos and Thailand. *Clupisoma sinensis* is similar to *C. roosae*, and shares a comparatively low pectoral-fin ray count of 11 branched rays, and comparatively high numbers of branched anal-fin rays (42 to 45 in *C. sinensis*, 45 to 47 in *C. roosae*). However, in both the original description of the species as well as the counts taken from the three specimens examined for this study, *C. sinensis* exhibits a higher number of gill rakers (20 to 28 in original description, 21 to 23 in examined specimens) than the 15 to 17 found in *C. roosae*.

**Etymology.** The species is named for Anna Roos who, together with Fang Fang, both of the Swedish Museum of Natural History, collected the holotype of this species.

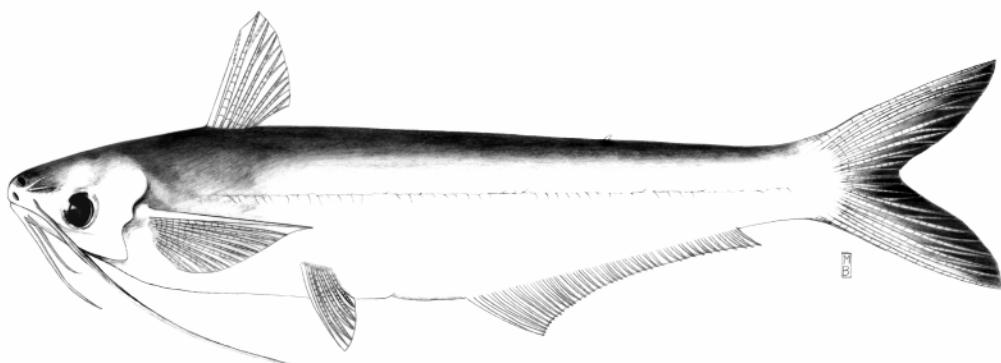
### *Clupisoma prateri* Hora, 1937 (Fig. 2)

*Clupisoma prateri* Hora, 1937: 671, figs. 2b, 3b, 6 (type locality: Burma). Holotype: ASB Dup Cat. no. 219 [housed at ZSI]).

**Material examined.** All specimens from Myanmar: AMNH 7808 (1, 161 mm SL), Monywa; BMNH 1889.2.1.2411–2 (2, 132–133 mm SL), Moulmein; BMNH 1889.2.1.2462 (1, 110 mm SL), Irrawaddy; BMNH 1891.11.30.184 (1, 116 mm SL), Sittang River; CAS 88898 (2, 123–124 mm SL), USNM 372157 (1, 188 mm SL), Yangon market; CAS 88908 (1, 122 mm SL), Nyaung-U market; CAS 94939 (1, 146 mm SL), Mandalay market; NRM 31186 (2, 178–180 mm SL), Shweli River; NRM 31187 (9, 92–187 mm SL), Moulmein; NRM 31190 (5, 70–91 mm SL), Rangoon; NRM 31189 (1, 123 mm SL), Kyondo; USNM 372495 (2, 178–184 mm SL), Thanlyin market.

**Diagnosis.** A species of *Clupisoma* in which the pectoral spine extends at least to the base of the pelvic fin, the abdomen is markedly keeled from the level of the pectoral-fin origin to the anus, pectoral fin with 12 or 13 segmented rays, anal fin with 37 to 41 branched rays, and first gill arch with at least 20 rakers. The body is silvery, except for a dorsal greenish band that extends only slightly ventral of the middorsal line of the body.

**Description.** (based primarily on NRM 31187) Body elongate, compressed; depth at dorsal origin nearly 5 in SL and approximately equal to HL; dorsal profile of body slightly convex, nearly horizontal posterior of dorsal fin, straight between dorsal-fin origin and snout; abdomen sharply keeled from level of pectoral-fin origin to vent; vent located just anterior to anal-fin origin. Lateral line complete, straight, with short branches extending obliquely above and, mostly, below for entire length. Vertebral column with 48 to 50 vertebrae and 13 or 14 ribs.



**FIGURE 2.** *Clupisoma prateri* Hora, 1937, CAS 88908 (122 mm SL).

Head nearly 5 in SL; compressed posteriorly, nearly as high as wide at middle of eye; opercular opening broad, extending from level of lateral line to anterior of isthmus, opercular membranes not connected to isthmus; posterolateral margin of operculum with posteriorly directed, fleshy lobe; tip of lobe rounded.

Snout acutely rounded in lateral view, in dorsal view, snout margin trilobed, lobes not well defined; anterior naris located on anterior margin of snout; naris round and directed anteriorly, narial opening surrounded by reflexed skin; posterior naris an elongated slit, located slightly posterodorsal and medial to anterior naris, naris nearly transversely oriented, but medial end somewhat posterior of anterior end; anterior narial margin with convex flap of skin that often covers narial opening; nares large, width of posterior naris greater than that of internarial distance.

Eye ventrolaterally placed, but also visible from dorsal view; eye positioned somewhat below middle of head, middle of pupil ventral to level of anterior naris; eye covered laterally with adipose tissue, with ovoid, vertically elongated opening.

Mouth subterminal, upper jaw overhangs lower jaw; mouth opening small, completely anterior to anterior orbital margin; premaxillary tooth plate arched, teeth slender and conical, in two or three irregular rows medially, as many as five rows laterally; upper jaw teeth exposed when mouth is closed. Tooth plate on lower jaw crescentic, teeth slender, conical and somewhat larger than premaxillary teeth, in several rows near symphysis, reduced to one row laterally. Palatal tooth patch elongate, ovoid, not reaching to midline; teeth coni-

cal, smaller than those of premaxilla. Teeth in five or six irregular rows. Accessory tooth patches absent from upper jaw and palate.

Gill rakers: 20 to 25 on lateral face of first arch (5 to 8 on dorsal limb and 15 to 18 on lower limb).

Barbel in four pairs, all barbels rest in shallow groove in skin, at least basally. Nasal barbel small, thread-like; extending from lateral margin of posterior naris to level of pupil. Maxillary barbel extends from posterior of anterior naris to tip of adpressed pelvic fin; mental barbels in two pairs, barbel bases originate in transverse row at level of posterior naris; inner mental barbel extends to level of pectoral spine origin, outer mental barbels slightly shorter.

Dorsal fin located in anterior one-third of SL, fin base short, about equal to snout length and about 1/2 of length of dorsal spine; fin much smaller than pectoral fin; dorsal fin with spinelet, slender spine and seven branched rays; spine with fine roughened ridge anteriorly, and with fine retrorse serrations on distal half of posterior margin; fin margin regressive, nearly straight; length of last ray less than one-half that of first. Dorsal fin rays: II,7. Adipose fin tiny, located above posterior quarter of anal-fin base; absent in some specimens.

Caudal fin deeply forked, lobes pointed and symmetrical; outer principal rays somewhat less than 3 times length of middle rays. Principal caudal fin rays: i,7,8,i.

Anal-fin origin located just anterior to level of middle of SL; anal-fin base long, about 3 times in SL. Fin margin slightly concave anteriorly, nearly straight posteriorly; posterior rays shortest. Last ray without membranous connection to caudal peduncle. Anal-fin rays: iv–v, 37–41.

Pelvic fin moderate in size, its length about equal to length of dorsal-fin spine; fin origin about one dorsal-fin base length posterior to posterior insertion of dorsal fin; adpressed fin just shy of anal-fin origin. Pelvic-fin rays: i, 5.

Pectoral fin large, triangular, first branched ray longest. Pectoral-fin spine long, stout, adpressed fin extends to past level of dorsal fin base, and past pelvic-fin origin; spine with fine roughened ridge anteriorly, and with fine retrorse serrations on distal half of posterior margin. Pectoral-fin rays: I, 12–13.

**Coloration.** Body greenish above, silvery below. Anteriorly, green extends to lateral line, for most of body greenish area limited to dorsum. Head dark dorsal to level of orbit, silvery laterally and ventrally; snout margin pale. Ventral surface of head and abdomen pale. Dorsal fin pale dusky anteriorly, posterior rays pale. Adipose fin pale. Caudal fin mostly pale, fin margin with broad dusky band. Anal and pelvic fins pale. Pectoral fin dusky on basal part of anterior rays, posterior rays and fin margin pale. Maxillary barbel dusky basally, other barbels pale.

**Distribution.** Found widely distributed in the lower and middle reaches of the Irrawaddy River, the lower reaches of the Salween River, and the Bago and Sittang rivers of Myanmar.

**Remarks.** Hora (1937: 672–673) distinguished *Clupisoma prateri* from *Clupisoma garua* on the basis of seven characters: “nasal barbels extend considerably beyond the front margin of the eye; maxillary barbel extend to about the middle of pelvics and sometimes to the commencement of the anal fin; mandibular barbels extend to the hind border of operculum; pectorals extend beyond pelvic-fin origin; anal with about 40 to 44 rays; whole of dorsal fin considerably in advance of pelvics; and abdominal edge keeled throughout in front of vent.” Although Hora stated that the specimens he examined were not in good condition, the characters he observed fit well with those found in the specimens examined here from the lower Irrawaddy basin and nearby rivers. Therefore, even in the absence of a direct examination of the holotype, there is no doubt that the lower Irrawaddy specimens are *Clupisoma prateri*.

Characters that separate this species from *Clupisoma roosae*, the only other species in Myanmar, are summarized in Table 1 as well as the Remarks section of that species. *Clupisoma prateri* is distinguished from all other congeners by the extent of the midventral abdominal keel, which extends from just posterior of the isthmus to the vent.

In the original description of *Clupisoma prateri* the holotype is listed with two different catalog numbers. In the caption for figure 6 and in the table on page 673, the number is listed as "Dup. Cat. No. 219," but in the text on page 673 it is listed as Duplicate Catalogue No. 213. Menon and Yazdani (1968) cite the catalog number as ASB Dup. Cat. No. 219 [housed at ZSI], which they presumably verified against the specimen and is, therefore, used herein.

### Comparative material examined.

*Clupisoma garua*: All specimens from India: BMNH 1889.2.1.2443–2447 (8, 73–145 mm SL), Calcutta; BMNH 1858.8.15.127 (1, 128 mm SL), Ganges; SU 34839 (11, 109–167 mm SL), Hugli River, Calcutta; SU 14579 (1, 179 mm SL) Megna River, Bengal; NRM 40588 (2, 232–248 mm SL), Dibrugarh Market; NRM 40599 (1, 106 mm SL), Dibrugarh Market.

*Clupisoma sinensis*: CAS 93282 (1, 166 mm SL), Laos, Nam Theun; CAS 68201 (2, 164–174 mm SL), Thailand, Mukdahan Market.

### Acknowledgments

The following people permitted me to examine specimens under their care: William Eschmeyer, Tomio Iwamoto, and David Catania (CAS), Sven Kullander and Erik Åhlander (NRM), Richard Vari and Susan Jewett (USNM), Melanie Stiassny, Scott Schaefer, and Barbara Brown (AMNH), Darrell Siebert and Oliver Crimmon (BMNH). The illustrations were prepared by Molly Brown. Information on the commercial fishing

in northern Myanmar was provided by U Tun Shwe, Kachin State Fishery Officer. I thank each of these people for their assistance. Financial support for the production of illustrations was provided by the CAS In-house Research fund. This paper is a contribution to the All Catfish Species Inventory, which is supported by a grant from the National Science Foundation (DEB 0315963).

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